

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05 June 2008 has been entered.

Specification

2. The disclosure is objected to because of the following informality:

In line 1 of claim 25, "wherein the means for reinforcing further comprising" should be corrected to read --wherein the means for reinforcing further comprises--. Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Shirotori (US 4,818,907).

Shirotori (US 4,818,907) teaches a composite structure (FIG. 5, for instance) comprising a base (includes 1, for instance) having a first side and a second side, the first side having a patterned surface structure and including at least one aperture (1a, for instance) extending through the base between the first side and the second side; a printed circuit board (19) including at least one raised circuit component (5, for instance) elevated from a board portion of the printed circuit board and the at least one raised circuit component extending into the at least one aperture and forming a space between an edge surface of the at least one aperture and the at least one raised circuit component; and an adhesive portion (26) in the at least one aperture having a thickness that extends between the first and second sides of the base and a width that extends between the edge surface of the at least one aperture and the at least one raised circuit component to fill the space between the at least one raised circuit component and the edge surface of the at least one aperture of the base [as per claim 1]; wherein the adhesive portion is an epoxy adhesive (line 39 in column 1, for instance) [as per claim 18]. With respect to the intended use limitations appearing in lines 1 and 3 of independent claim 1, note that a recitation with respect to the manner in which a claimed apparatus (i.e., "composite structure") is intended to be employed (i.e., "for a

data storage device" and "for assembly of a drive motor and a head actuator", for instance) does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations, *Ex parte Masham*, 2 USPQ2d 1647 (PTO BPAI 1987).

5. Claims 13 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Takagi et al. (US 2002/0181155).

Takagi et al. (US 2002/0181155) teach a structure (Fig. 5, for instance) comprising a base (22) including a base portion (23) having a base thickness of about 0.3 mm or less (paragraph [0082], for instance) and at least one aperture (surrounded by 25, for instance); and means for reinforcing (includes 45, for instance, in at least an equivalent structural sense) the base portion to form a stiff support structure (paragraphs [0090]-[0093], for instance) [as per claim 13]; wherein the at least one aperture extends between opposed sides of the base (as shown in Fig. 8, for instance) [as per claim 23].

6. Claims 13, 14, 17 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Hong et al. (US 2004/0222712).

Hong et al. (US 2004/0222712) teach a structure (FIG. 4D, for instance) comprising a base (440A) including a base portion having a base thickness of about 0.3 mm or less (paragraphs [0034]-[0035], for instance) and at least one aperture (430D, for instance); and means for reinforcing (includes 450, for instance, in at least an equivalent

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structural sense) the base portion to form a stiff support structure [as per claim 13]; wherein the means for reinforcing includes an adhesive portion (450) in the at least one aperture of the base (as shown in FIG. 4D, for instance) [as per claim 14]; wherein the adhesive portion is an epoxy adhesive (paragraphs [0036]-[0037], for instance) [as per claim 17]; and wherein the at least one aperture extends between opposed sides of the base (as shown in FIG. 4D, for instance) [as per claim 23].

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirotori (US 4,818,907).

Shirotori (US 4,818,907) teaches the structure as detailed in paragraph 4, *supra*. Shirotori (US 4,818,907), however, remains silent as to the overall thickness of the structure being “less than 3.3 mm” as per claim 5 and the base thickness being “between 0.2 mm and 0.3 mm” as per claim 6.

Official notice is taken of the fact that there is a trend in the data storage device art to downsize, and it is notoriously old and well known in the data storage device art to modify the parameters of data storage device components during the course of routine

optimization/experimentation. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the overall thickness of the structure of Shirotori (US 4,818,907) be less than 3.3 mm and the base thickness of Shirotori (US 4,818,907) be between 0.2 mm and 0.3 mm. The rationale is as follows:

One of ordinary skill in the art would have been motivated to have had the overall thickness of the structure of Shirotori (US 4,818,907) be less than 3.3 mm and the base thickness of Shirotori (US 4,818,907) be between 0.2 mm and 0.3 mm since there is a trend in the data storage device art to downsize, and since such ranges, absent any criticality (i.e., unobvious and/or unexpected result(s)), are generally achievable through routine optimization/experimentation, and since discovering the optimum or workable ranges, where the general conditions of a claim are disclosed in the prior art, involves only routine skill in the art, *In re Aller*, 105 USPQ 233 (CCPA 1955). Moreover, in the absence of any criticality (i.e., unobvious and/or unexpected result(s)), the parameters set forth above would have been obvious to a person having ordinary skill in the art at the time the invention was made, *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

9. Claims 13, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schmitz (US 5,235,482).

Schmitz (US 5,235,482) teaches a structure (FIG. 1, for instance) comprising a base (102) including a base portion having a base thickness and at least one aperture (310, for instance); and means for reinforcing (includes 104, for instance, in at least an

equivalent structural sense) the base portion to form a stiff support structure [as per claim 13]; wherein the at least one aperture extends between opposed sides of the base (as shown in FIG. 3, for instance) [as per claim 23]; and wherein the structure further comprises a printed circuit board (106) and the means for reinforcing comprises a layer of adhesive (104) between the printed circuit board and the base (as shown in FIG. 1, for instance) [as per claim 24]. Schmitz (US 5,235,482), however, remains silent as to the base thickness being "about 0.3 mm or less."

Official notice is taken of the fact that there is a trend in the data storage device art to downsize, and it is notoriously old and well known in the data storage device art to modify the parameters of data storage device components during the course of routine optimization/experimentation. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the base thickness of Schmitz (US 5,235,482) be about 0.3 mm or less. The rationale is as follows:

One of ordinary skill in the art would have been motivated to have had the base thickness of Schmitz (US 5,235,482) be about 0.3 mm or less since there is a trend in the data storage device art to downsize, and since such ranges, absent any criticality (i.e., unobvious and/or unexpected result(s)), are generally achievable through routine optimization/experimentation, and since discovering the optimum or workable ranges, where the general conditions of a claim are disclosed in the prior art, involves only routine skill in the art. See *In re Aller*, supra. Moreover, in the absence of any criticality (i.e., unobvious and/or unexpected result(s)), the parameters set forth above would

have been obvious to a person having ordinary skill in the art at the time the invention was made. See *In re Woodruff*, supra.

10. Claims 13, 23, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yagi et al. (US 5,654,847).

Yagi et al. (US 5,654,847) teach a structure (Fig. 17, for instance) comprising a base (11) including a base portion having a base thickness and at least one aperture (includes one of the screw holes shown in Fig. 2, for instance); and means for reinforcing the base portion to form a stiff support structure (lines 47-50 in column 9, for instance, in at least an equivalent structural sense) [as per claim 13]; wherein the at least one aperture extends between opposed sides of the base (as shown in Fig. 2, for instance) [as per claim 23]; wherein the structure further comprises a printed circuit board (15a) and the means for reinforcing comprises a layer of adhesive between the printed circuit board and the base (lines 47-50 in column 9, for instance) [as per claim 24]; and wherein the means for reinforcing further comprises a shield (51) and an adhesive portion (58) in a gap between the shield and the printed circuit board [as per claim 25]. Yagi et al. (US 5,654,847), however, remain silent as to the base thickness being "about 0.3 mm or less."

Official notice is taken of the fact that there is a trend in the data storage device art to downsize, and it is notoriously old and well known in the data storage device art to modify the parameters of data storage device components during the course of routine optimization/experimentation. It would have been obvious to a person having ordinary

skill in the art at the time the invention was made to have had the base thickness of Yagi et al. (US 5,654,847) be about 0.3 mm or less. The rationale is as follows:

One of ordinary skill in the art would have been motivated to have had the base thickness of Yagi et al. (US 5,654,847) be about 0.3 mm or less since there is a trend in the data storage device art to downsize, and since such ranges, absent any criticality (i.e., unobvious and/or unexpected result(s)), are generally achievable through routine optimization/experimentation, and since discovering the optimum or workable ranges, where the general conditions of a claim are disclosed in the prior art, involves only routine skill in the art. See *In re Aller*, supra. Moreover, in the absence of any criticality (i.e., unobvious and/or unexpected result(s)), the parameters set forth above would have been obvious to a person having ordinary skill in the art at the time the invention was made. See *In re Woodruff*, supra.

11. Claims 13, 14, 16, 17 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Codilian (US 6,697,217).

Codilian (US 6,697,217) teaches a structure (FIG. 6B, for instance) comprising a base (22) including a base portion having a base thickness and at least one aperture (as shown in FIG. 6B, for instance); and means for reinforcing (includes 32, for instance, in at least an equivalent structural sense) the base portion to form a stiff support structure [as per claim 13]; wherein the means for reinforcing includes an adhesive portion (32) in the at least one aperture of the base (as shown in FIG. 6B, for instance) [as per claims 14 and 17]; wherein the structure further comprises a printed circuit board

(28) having at least one component (30, for instance) projecting into the at least one aperture of the base and the means for reinforcing comprises an adhesive portion (32) between the at least one component projecting into the at least one aperture of the base and an edge surface of the at least one aperture (as shown in FIG. 6B, for instance, i.e., at least at location 34 shown in FIG. 6A, for instance) [as per claim 16]; and wherein the structure further comprises a printed circuit board (106) and the means for reinforcing comprises a layer of adhesive (104) between the printed circuit board and the base (as shown in FIG. 1, for instance) [as per claim 24]. Codilian (US 6,697,217), however, remains silent as to the base thickness being "about 0.3 mm or less" as per claims 13, 14, 16, 17 and 24, and the adhesive material being "epoxy" as per claim 17.

Official notice is taken of the fact that there is a trend in the data storage device art to downsize, and it is notoriously old and well known in the data storage device art to modify the parameters of data storage device components during the course of routine optimization/experimentation. Official notice is also taken of the fact that epoxy is a notoriously old and well known adhesive material in the art. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have had the base thickness of Codilian (US 6,697,217) be about 0.3 mm or less, and to have had the adhesive material of Codilian (US 6,697,217) be epoxy. The rationale is as follows:

One of ordinary skill in the art would have been motivated to have had the base thickness of Codilian (US 6,697,217) be about 0.3 mm or less since there is a trend in the data storage device art to downsize, and since such ranges, absent any criticality

(i.e., unobvious and/or unexpected result(s)), are generally achievable through routine optimization/experimentation, and since discovering the optimum or workable ranges, where the general conditions of a claim are disclosed in the prior art, involves only routine skill in the art. See *In re Aller*, supra. Moreover, in the absence of any criticality (i.e., unobvious and/or unexpected result(s)), the parameters set forth above would have been obvious to a person having ordinary skill in the art at the time the invention was made. See *In re Woodruff*, supra.

One of ordinary skill in the art would have been motivated to have had the adhesive material of Codilian (US 6,697,217) be epoxy since such is a notoriously old and well known adhesive material in the art, and since selecting a known material on the basis of its suitability for the intended use is within the level of ordinary skill in the art, *In re Leshin*, 125 USPQ 416 (CCPA 1960).

Allowable Subject Matter

12. Claims 7, 8, 11, 12, 21 and 22 are allowable over the prior art of record. Claims 2, 3 and 4 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

13. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig A. Renner whose telephone number is (571) 272-7580. The examiner can normally be reached on Tuesday-Friday 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, A. L. Wellington can be reached on (571) 272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Craig A. Renner/
Primary Examiner, Art Unit 2627

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